

Book

2 FIELDIANA Zoology

Published by Field Museum of Natural History

Volume 72, No. 6

February 23, 1978

A New Helogeneid Catfish From Eastern Ecuador (Pisces, Siluriformes, Helogeneidae)

GARRETT S. GLODEK

DIVISION OF FISHES
FIELD MUSEUM OF NATURAL HISTORY
and

H. JACQUE CARTER

DEPARTMENT OF BIOLOGICAL SCIENCES
NORTHERN ILLINOIS UNIVERSITY
DE KALB, ILLINOIS

The Library of the

MAY 2 1978

University of Illinois
Champaign, Illinois

ABSTRACT

A new species of helogeneid catfish, *Helogenes unidorsalis*, is described on the basis of seven specimens from the upper Amazon in eastern Ecuador. This is the first record of the family Helogeneidae from eastern Ecuador. A key to the species of the genus *Helogenes* is given.

INTRODUCTION

Günther (1863) established the catfish genus *Helogenes* to include the single species *H. marmoratus*. Nearly 80 years elapsed before the second species, *H. amazonae* Delsman, 1941, was described. However, the description of this species was based on only one specimen, and was without the inclusion of any tables, measurements, or figures. In 1967, Fernandez-Yepez described the occurrence of a subspecies of *Helogenes marmoratus* Gunther, *H. marmoratus uruyensis*, from the Rio Uruyen, Venezuela. *Helogenes unidorsalis*, described here, represents the third species in the genus and is known from the Rio Bobonaza in eastern Ecuador, over 1,000 miles west of the known range of the genus. In 1960, Dahl described

Library of Congress Catalog Card No.: 77-93336

US ISSN 0015-0754

Publication 1276

75

BIOLOGY LIBRARY
101 BURRILL HALL

MAY

a new genus of helogeneid catfish from Colombia, *Levaichthys*. An in-depth diagnostic comparison will be discussed in a upcoming revision of the family Helogeneidae. Stated briefly, Dahl separates this genus from *Helogenes* on the basis of the absence of the adipose fin, position of the dorsal fin, dentition, and the number of anal-fin rays. However, upon examination of the specimens described in this paper, it appears that this new species, *H. unidorsalis*, is properly placed, at least for the present, in the genus *Helogenes*. This paper is the third in a series by the senior author (Glodek, 1976; Glodek et al., 1976) on the freshwater fishes of eastern Ecuador.

MATERIALS AND METHODS

Counts and measurements follow those of Hubbs and Lagler (1958). Measurements are presented as thousandths of the standard length (SL). Vertebral counts and anal-fin rays counts were made from radiographs. Vertebral counts include post-complex vertebrae only, and include as the final element the first ural centrum. Measurements were made with dial calipers to the nearest 0.1 mm.; measurements less than 5.0 mm. were made with the aid of an ocular micrometer. Comparative material was examined from the following institutions, Field Museum of Natural History, Chicago, Illinois (FMNH), and Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium (IRSNB). The specimens described in this paper are deposited at Field Museum of Natural History.

Helogenes Gunther

A genus of catfish with vomerine teeth in two distinct patches. Palatines without teeth. Premaxillary teeth in two series, teeth of the inner series smaller of the two. Gill rakers very reduced or absent. Eyes very small, without free orbital margin. Anal fin very long (31-45 rays). Dorsal fin set far back on the body, over middle of anal fin. Both dorsal and pectoral fins without spines. Gill membranes free from isthmus. Adipose fin very small or totally lacking.

A KEY TO THE SPECIES OF THE GENUS *Helogenes*

- a. Adipose fin present.
 - b. Anal-fin rays less than 45.
 - c. Anal-fin rays 37-41, length of anal-fin base .550 (Fernandez-Yepez, 1967) *Helogenes marmoratus* Gunther, 1863.
 - cc. Anal-fin rays 31-36, length of anal-fin base .430-.490 (Fernandez-Yepez, 1967). *Helogenes marmoratus uruyensis* Fernandez-Yepez, 1967.

- bb. Anal-fin rays 45 *Helogenes amazonae* Delsman, 1941.
 aa. Adipose fin absent *Helogenes unidorsalis* n. sp.

***Helogenes unidorsalis* n. sp.**

Holotype.—FMNH 80463. 73.1 mm. SL. Eastern Ecuador, Rio Bobonaza between Sarayacu and Montalvo.

Paratypes.—FMNH 80464. A total of six (52.0–67.0) mm. SL, taken with holotype.

Diagnosis.—A species of *Helogenes* without an adipose fin and having 37–44 anal-fin rays. Pectoral fins covered with dark brown pigmentation. The combination of these characters separates *Helogenes unidorsalis* from all other species in the genus *Helogenes*.

Description.—*Meristics*.—Values for holotype in parentheses. Dorsal-fin elements 5 (5). Anal-fin rays 37–44 (44). Pectoral-fin rays 6 (6). Pelvic-fin rays 6 (6). Vertebrae 38 (38).

Proportional dimension.—Expressed as thousandths of SL. Values given as the range with values for holotype in parentheses. Head length, 183–216 (193); head width 158–174 (165); snout length 61–73 (73); body depth 211–254 (245); post-orbital length 103–135 (131); bony interorbital 74–86 (86); horizontal eye diameter 19–23 (19); width of gape 115–136 (129); longest pectoral-fin ray 169–192 (187); pelvic fin 95–108 (102); predorsal-fin length 535–710 (677); length of anal-fin base 483–595 (520); least caudal peduncle depth 114–131 (131); distance from snout to: pelvic-fin origin 354–395 (381); anal-fin origin 430–494 (481).

Additional proportional dimensions.—Head in SL, 4.6–5.5 (5.2); snout in head 2.6–3.5 (2.6); horizontal eye diameter in head, 8.8–11.2 (9.9); horizontal eye diameter in bony interorbital width 3.2–4.5 (4.4); bony interorbital width in head length, 2.2–2.9 (2.2); gape in head 1.5–1.9 (1.5); least caudal peduncle depth in head 1.5–1.8 (1.5).

HEAD.—Mouth terminal, large with wide gape. Upper jaw very slightly in advance of lower jaw. Eyes very small. Three pairs of barbels; one pair of maxillary barbels just reaching gill openings, two pairs of mental barbels reaching bases of pectoral fins or slightly beyond. Gill membranes free from isthmus.

FINS.—Dorsal fin inserted on posterior half of body. Pectoral fins large, rounded, without spines. Appressed pectoral fins just reaching pelvic-fin bases. Pelvic fins very much reduced, much

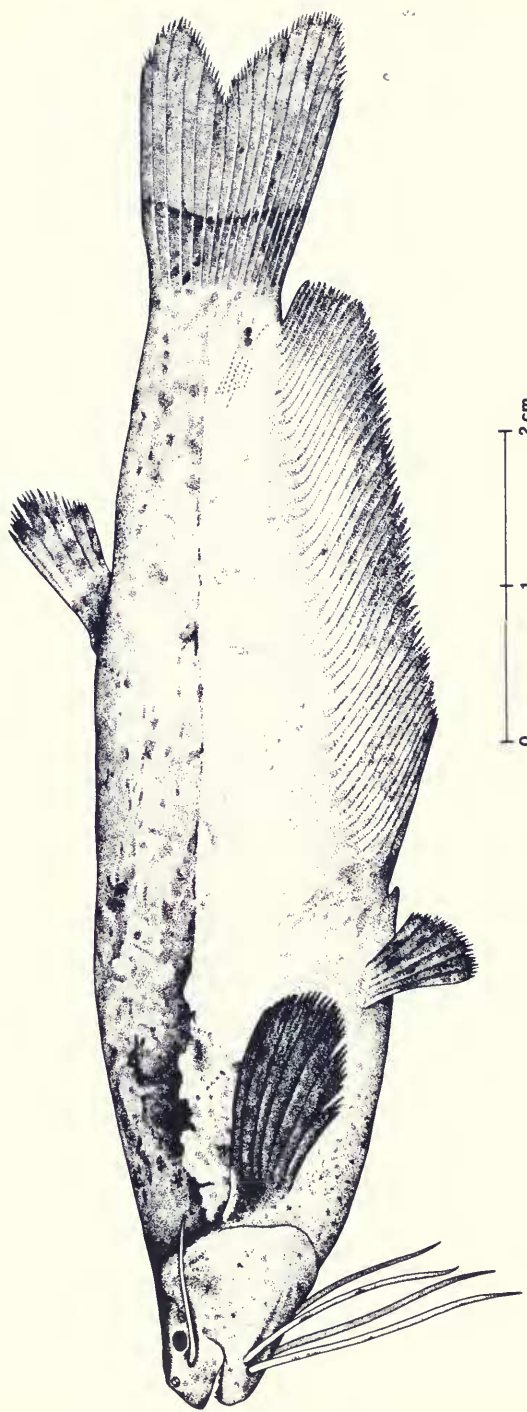


FIG. 1. Lateral view of the holotype of *Helogenes unidorsalis*, 73.1 mm. SL. FMNH 80463.

smaller than pectorals. Appressed pelvic fins reaching anal-fin base. Anterior anal-fin rays much longer than posterior rays. Caudal fin with shallow fork. Length of anal-fin base more than 50 per cent of SL.

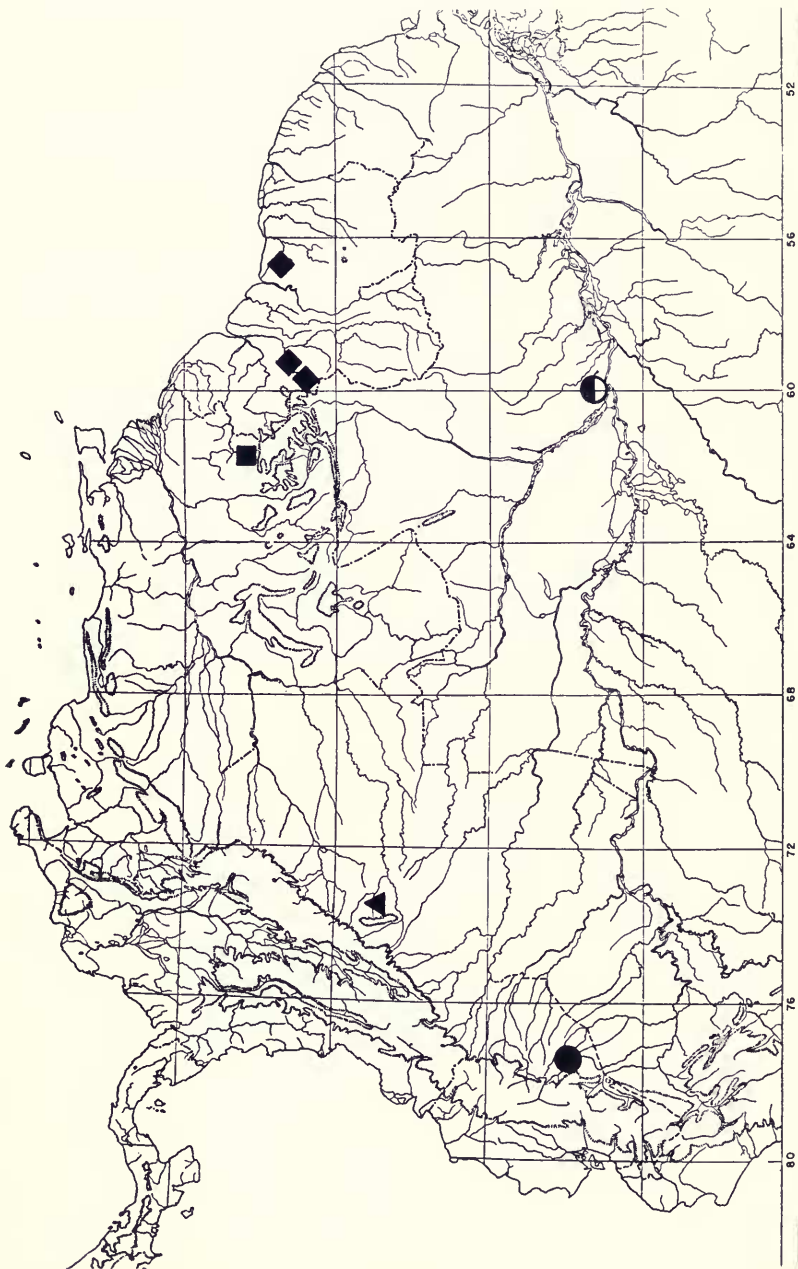
BODY.—Body heavy and wide anterior to a vertical line from anal-fin origin. Posterior to this line body is tapered to caudal base. Lateral line extends length of body. Predorsal length greater than length of anal-fin base.

TEETH.—Upper jaw with two close-set rows of very small conical teeth, the more anterior row nearly obscured by tissue of upper lip. Lower jaw with at least 6–7 rows of teeth. Anterior tooth rows in lower jaw larger than posterior rows. Teeth absent from palatines, but in two patches on vomer.

Color in alcohol.—Pectoral fins with dense, dark brown pigmentation covering entire fin. Dorsal and pelvic fins with a mottled brown appearance. Caudal fin with a vertical dark brown stripe near fin midlength. Distal margin of anal fin with a dark brown line present nearly bordering the fin margin. Overall body coloration light brown with numerous dark brown patches over epaxial musculature, especially on head, and in area dorsal to pectoral-fin bases. Coloration over hypaxial musculature generally without dark brown patches.

Etymology.—*Helogenes unidorsalis* is named with reference to the presence of a single dorsal fin.

Distribution.—The specimens of *Helogenes unidorsalis* described here are from near Sarayacu on the Rio Bobonaza, a tributary of the Rio Pastaza, which is a tributary of the Rio Marañon on the upper Amazon drainage in eastern Ecuador (fig. 2). The distributional records of the remaining congeners are confined to northeast Venezuela and Guayana, and north-central Brazil, *H. marmoratus* from Guayana (fig. 2), *H. marmoratus uruyensis* from northeast Venezuela (fig. 2), and *H. amazonae* from near Manaus, Rio Amazonas, north-central Brazil (fig. 2). *Levaichthys castaneus* described by Dahl (1960) is far removed from the known range of *Helogenes*, being found in the upper Orinoco drainages of eastern Colombia (fig. 2) over 1,000 miles west of the known range of the presently known *Helogenes* species. However, the record for *Helogenes unidorsalis* from eastern Ecuador is also over 1,000 miles west of the known range of the genus *Helogenes*, but is recorded



from the Amazon drainage rather than the Orinoco system. From these extreme western records for the family Helogeneidae it seems probable that family representatives do occur in other western localities as well as in the interlying areas and that their absence from these areas is due primarily to insufficient and incomplete collections. However, the absence of this family from localities south of the main stream of the Amazon may indicate that the Amazon itself acts as a barrier to the dispersal of these fishes.

Comments.—The limits of the genus *Helogenes* were set forth by Günther (1863), and later by Eigenmann (1912) when he elevated the genus *Helogenes* to family rank after its long-standing association with the Hypophthalmidae. Eigenmann (1912) defined the family Helogeneidae as follows: “Dorsal small, behind middle of the body; anal long, its origin near the beginning of the fifth-ninth of the body; dorsal and pectoral without spines; adipose fin minute; caudal forked; gill membranes free from the isthmus; teeth few; six barbels; nares without barbels; eyes very small, directed upward and outward; air-bladder transversely uniform, not covered by bone.”

When Dahl (1960) described the new helogeneid genus *Levaichthys*, the diagnostic characters which removed the genus from *Helogenes*, in addition to the absence of the adipose fin, were “. . . the position far back of the dorsal fin, the large number of anal rays and the peculiar dentition. . .” From detailed examination of our own material (*H. unidorsalis*), in addition to specimens of *H. marmoratus* and *H. amazonae*, we are convinced that the species described in this paper, *H. unidorsalis*, is, in fact, in its proper taxonomic position in the genus *Helogenes*. Although *H. unidorsalis* does share the lack of an adipose fin with *Levaichthys*, the presence of two rows of teeth on the premaxillary, the dentition of the lower jaw, and the general similarity to *Helogenes* convinces us to retain our species (*H. unidorsalis*) in the genus *Helogenes*.

Material examined.—*Helogenes amazonae*, Holotype IRSNB 10910 (1); *Helogenes marmoratus* FMNH 7405 (1), 7406 (1), 53239

Opposite:

FIG. 2. Distribution of the genus *Helogenes* and *Levaichthys*: *Helogenes unidorsalis* (●), a new species from the Rio Bobonaza in eastern Ecuador; *H. amazonae* (◐), from near Manaus, Rio Amazonas, north-central Brazil; *H. marmoratus* (◆), from the rivers of Guayana; *H. marmoratus uruyensis* (■), from the Rio Uruyen, northeast Venezuela; and *Levaichthys castaneus* (▲), from the Rio Guayabero, Orinoco drainage, eastern Colombia.

(3), 53240 (3), 53241 (6), 53242 (3), 53722 (1), 69648 (9), 70114 (2), 70115 (7).

ACKNOWLEDGEMENTS

We extend thanks to Gustavo Orces V., Department of Biology, Escuela Politecnica Nacional, Quito, Ecuador, for making these specimens available for study. We also thank Ronald and Linda Devermann, both of whom handled shipment of the specimens from Quito. We are grateful to Loren P. Woods, Robert K. Johnson, and Rupert Wenzel, Field Museum of Natural History, who made suggestions on the species name. Special thanks to Zbigniew T. Jastrzebski, Scientific Illustrator, Field Museum of Natural History, who drew the illustration. Thanks also to Dr. J. P. Gosse, Institut Royal des Sciences Naturelles de Belgique, who was kind enough to lend the holotype of *Helogenes amazonae*.

REFERENCES

- DAHL, G.
1960. Nematognathus fishes collected during the Macerena Expedition, 1959. *Novedadas Colombianas*, I, no. 5, pp. 303-307.
- DELSMAN, F.
1941. Resultats scientifiques des croisières du Navire-Ecole Belge "Mercator." *Mem. Mus. Royal Hist. Nat. Belgique*, ser. 2, 31, p. 80.
- EIGENMANN, C. H.
1912. The freshwater fishes of British Guiana. *Mem. Carnegie Mus.*, 5, pp. 1-578.
- FERNANDEZ-YEPEZ, A.
1967. Primera contribucion al conocimiento de los peces con description de dos especies y una subespecie nuevos. *Acta Biol. Venezuelica*, 5, art 10, pp. 166-170.
- GLODEK, G. S.
1976. *Rhynchodoras woodsi*, a new catfish from Eastern Ecuador (Siluriformes: Doradidae) with a redefinition of *Rhynchodoras*. *Copeia*, 1976, no. 1, pp. 43-46.
- GLODEK, G. S., G. L. WHITMIRE, AND G. S. ORCES.
1976. *Rhinodoras boehlkei*, a new catfish from Eastern Ecuador (Osteichthys, Siluroidei, Doradidae). *Fieldiana: Zoology*, 70, no. 1, pp. 1-11.
- GÜNTHER, A.
1863. On new species of fishes from the Essequibo. *Ann. Mag. Nat. Hist.*, ser. 3, 12, p. 455.
- HUBBS, C. L. and K. F. LAGLER
1958. *Fishes of the Great Lakes region*. Cranbrook Press, Bloomfield Hills, Michigan, pp. 19-26.